WHAT IS CLAIMED IS:

1. An oxygen barrier composition, comprising:

a oxygen barrier polymer, an oxygen scavenging polymer, and an oxidation catalyst, wherein the oxygen barrier polymer is selected from poly(ethylene/vinyl alcohol) (EVOH), polyacrylonitrile (PAN), copolymers comprising acrylonitrile, poly(vinylidene dichloride) (PVDC), or polyamides not derived from xylene diamine-based monomers; and the oxygen scavenging polymer is a polyamide oligomer or polymer derived at least in part from a xylene diamine-based monomer.

2. The composition of claim 1, wherein the oxygen scavenging polymer comprises from about 10 mol% to about 50 mol% units derived from a xylene diamine-based monomer.

3. The composition of claim 1, wherein the oxygen scavenging polymer comprises from about 1% to about 30% of the blend by weight.

4. The composition of claim 1, wherein the oxygen scavenging polymer is MXD6.

5. The composition of claim 1, wherein the composition has an oxygen transmission rate at least 2 times lower than that of the oxygen barrier polymer alone.

6. The composition of claim 1, wherein the oxidation catalyst comprises a transition metal selected from cobalt, copper, nickel, iron, manganese, rhodium, or ruthenium.

7. The composition of claim 6, wherein the oxidation catalyst is a salt comprising a counterion selected from C_1-C_{20} alkanoates.

8. The composition of claim 7, wherein the transition metal salt is cobalt oleate, cobalt stearate, or cobalt neodecanoate.

9. The composition of claim 1, further comprising a photoinitiator.

10. The composition of claim 9, wherein the photoinitiator is selected from benzophenone derivatives containing at least two benzophenone moieties and having the formula:

$$A_a(B)_b$$

wherein

A is a bridging group selected from sulfur; oxygen; carbonyl; -SiR"$_2$-, wherein each R" is individually selected from alkyl groups containing from 1 to 12 carbon atoms, aryl groups containing 6 to 12 carbon atoms, or alkoxy groups containing from 1 to 12 carbon atoms; -NR"'-, wherein R"' is an alkyl group containing 1 to 12 carbon atoms, an aryl group containing 6 to 12 carbon atoms, or hydrogen; or an organic group containing from 1 to 50 carbon atoms;

a is an integer from 0 to 11;

B is a substituted or unsubstituted benzophenone group; and

b is an integer from 2 to 12.

11. The composition of claim 10, wherein the photoinitiator is selected from dibenzoyl biphenyl, substituted dibenzoyl biphenyl, benzoylated terphenyl, substituted benzoylated terphenyl, tribenzoyl triphenylbenzene, substituted tribenzoyl triphenylbenzene, benzoylated styrene oligomer, or substituted benzoylated styrene oligomer.

12. The composition of claim 1, further comprising an antioxidant.

13. The composition of claim 12, wherein the antioxidant is selected from 2,6-di(t-butyl)-4-methylphenol(BHT), 2,2'-methylene-bis(6-t-butyl-p-cresol), triphenylphosphite, tris-(nonylphenyl)phosphite, vitamin E, tetra-bismethylene 3-(3,5-ditertbutyl-4-hydroxyphenyl)-propionate methane, or dilaurylthiodipropionate.

14. A packaging article, comprising:

at least one oxygen barrier layer comprising an oxygen barrier polymer and an oxygen scavenging polymer, wherein the oxygen barrier polymer is selected from poly(ethylene/vinyl alcohol) (EVOH), polyacrylonitrile (PAN), copolymers comprising acrylonitrile, poly(vinylidene dichloride) (PVDC), or polyamides not derived from xylene diamine-based monomers; and the oxygen scavenging polymer is a polyamide oligomer or polymer derived at least in part from a xylene diamine-based monomer.

15. The packaging article of claim 14, wherein the oxygen scavenging polymer comprises from about 10 mol% to about 50 mol% units derived from a xylene diamine-based monomer.

16. The packaging article of claim 14, wherein the oxygen scavenging polymer comprises from about 1% to about 30% of the blend by weight.

17. The packaging article of claim 14, wherein the oxygen scavenging polymer is MXD6.

18. The packaging article of claim 14, further comprising a transition metal salt in the oxygen barrier layer or a layer adjacent to the oxygen barrier layer.

19. The packaging article of claim 18, wherein the transition metal is selected from cobalt, copper, nickel, iron, manganese, rhodium, or ruthenium.

20. The packaging article of claim 19, wherein the transition metal salt comprises a counterion selected from C_1-C_{20} alkanoates.

21. The packaging article of claim 20, wherein the transition metal salt is cobalt oleate, cobalt stearate, or cobalt neodecanoate.

22. The packaging article of claim 14, further comprising a photoinitiator in the oxygen barrier layer.

23. The packaging article of claim 22, wherein the photoinitiator is selected from benzophenone derivatives containing at least two benzophenone moieties and having the formula:

$$A_a(B)_b$$

wherein

A is a bridging group selected from sulfur; oxygen; carbonyl; -SiR"2-, wherein each R" is individually selected from alkyl groups containing from 1 to 12 carbon atoms, aryl groups containing 6 to 12 carbon atoms, or alkoxy groups containing from 1 to 12 carbon atoms; -NR"'-, wherein R"' is an alkyl group containing 1 to 12 carbon atoms, an aryl group containing 6 to 12 carbon atoms, or hydrogen; or an organic group containing from 1 to 50 carbon atoms;

a is an integer from 0 to 11;

B is a substituted or unsubstituted benzophenone group; and

b is an integer from 2 to 12.

24. The packaging article of claim 23, wherein the photoinitiator is selected from dibenzoyl biphenyl, substituted dibenzoyl biphenyl, benzoylated terphenyl, substituted benzoylated terphenyl, tribenzoyl triphenylbenzene, substituted tribenzoyl triphenylbenzene, benzoylated styrene oligomer, or substituted benzoylated styrene oligomer.

25. The packaging article of claim 14, further comprising an antioxidant in the oxygen barrier layer.

26. The packaging article of claim 25, wherein the antioxidant is selected from 2,6-di(t-butyl)-4-methylphenol(BHT), 2,2'-methylene-bis(6-t-butyl-p-cresol), triphenylphosphite, tris-(nonylphenyl)phosphite, vitamin E, tetra-bismethylene 3-(3,5-ditertbutyl-4-hydroxyphenyl)-propionate methane, or dilaurylthiodipropionate.

27. The packaging article of claim 14, further comprising an oxygen barrier layer, wherein the oxygen barrier layer does not comprise a polyamide derived at least in part from a xylene diamine-based monomer.

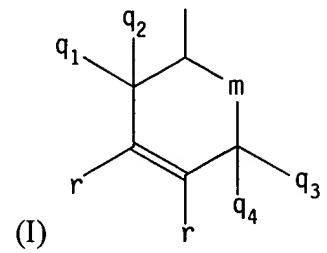
28. The packaging article of claim 27, wherein the oxygen barrier layer not comprising a polyamide derived at least in part from a xylene diamine-based monomer comprises poly(ethylene vinyl alcohol) (EVOH), polyacrylonitrile (PAN), a copolymer comprising acrylonitrile, poly(vinylidene dichloride) (PVDC), polyethylene terephthalate (PET), polyethylene napthalate (PEN), or polyamide other than MXD6.

29. The packaging article of claim 14, further comprising a structural layer.

30. The packaging article of claim 29, wherein the structural layer comprises PET, polyamide, polypropylene, polyethylene, low density polyethylene, very low density polyethylene, ultra-low density polyethylene, high density polyethylene, polyvinyl chloride, ethylene-vinyl acetate, ethylene-alkyl (meth)acrylates, ethylene-(meth)acrylic acid, ethylene-(meth)acrylic acid ionomers, paperboard, or cardboard.

31. The packaging article of claim 14, further comprising an oxygen scavenging layer.

32. The packaging article of claim 31, wherein the oxygen scavenging layer comprises an oxygen scavenging polymer comprising an ethylenic backbone and a cycloalkenyl group with structure I:



(I)

wherein q_1, q_2, q_3, q_4, and r are independently selected from hydrogen, methyl, or ethyl; m is $-(CH_2)_n-$, wherein n is an integer from 0 to 4, inclusive; and, when r is hydrogen, at least one of q_1, q_2, q_3, and q_4 is also hydrogen.

33. The packaging article of claim 32, wherein the oxygen scavenging layer comprises an oxygen scavenging polymer selected from ethylene/methyl acrylate/cyclohexenylmethyl acrylate terpolymer (EMCM), ethylene/vinyl cyclohexene copolymer (EVCH), ethylene/cyclohexenylmethyl acrylate copolymer (ECHA), or cyclohexenylmethyl acrylate homopolymer (CHAA).

34. The packaging article of claim 31, wherein the oxygen scavenging layer is a liner, coating, sealant, gasket, adhesive, non-adhesive insert, or fibrous mat insert in the packaging article.

35. The packaging article of claim 14, wherein the packaging article is in the form of a single layer flexible article, a multilayer flexible article, a single layer rigid article, or a multilayer rigid article.

36. A method of making an oxygen barrier composition comprising an oxygen barrier polymer, an oxygen scavenging polymer, and an oxidation catalyst, wherein the oxygen barrier polymer is selected from poly(ethylene/vinyl alcohol) (EVOH), polyacrylonitrile (PAN), copolymers comprising acrylonitrile, poly(vinylidene dichloride) (PVDC), or polyamides not derived from xylene diamine-based monomers; and the oxygen scavenging polymer is a polyamide oligomer or polymer derived at least in part from a xylene diamine-based monomer:

providing the oxygen barrier polymer, the polyamide derived at least in part from a xylene diamine-based monomer, and the oxidation catalyst; and

blending the oxygen barrier polymer, the polyamide, and the oxidation catalyst, to form the oxygen barrier composition.

37. The method of claim 36, wherein the oxygen scavenging polymer comprises from about 1% to about 30% of the blend by weight.

38. The method of claim 36, wherein the oxygen scavenging polymer is MXD6.

39. The method of claim 36, wherein the blending occurs during a reactive extrusion.

40. A method of forming an oxygen barrier layer in a packaging article, comprising:

providing an oxygen barrier composition comprising an oxygen barrier polymer and an oxygen scavenging polymer, wherein the oxygen barrier polymer is selected from poly(ethylene/vinyl alcohol) (EVOH), polyacrylonitrile (PAN), copolymers comprising acrylonitrile, poly(vinylidene dichloride) (PVDC), or polyamides not derived from xylene diamine-based monomers; and the oxygen scavenging polymer is a polyamide oligomer or polymer derived at least in part from a xylene diamine-based monomer; and

forming the composition into the packaging article or an oxygen barrier layer thereof.

41. The method of claim 40, wherein the oxygen scavenging polymer comprises from about 1% to about 30% of the composition by weight.

42. The method of claim 40, wherein the oxygen scavenging polymer is MXD6.

43. The method of claim 40, wherein the forming step comprises forming a transition metal salt into the oxygen barrier layer or a layer adjacent to the oxygen barrier layer of the packaging article.

44. The method of claim 40, wherein the oxygen barrier layer further comprises a photoinitiator.

45. The method of claim 40, wherein the oxygen barrier layer further comprises an antioxidant.

46. The method of claim 40, wherein the forming step further comprises forming an oxygen barrier layer in the packaging article, wherein the oxygen barrier layer does not comprise a polyamide derived at least in part from a xylene diamine-based monomer.

47. The method of claim 40, wherein the forming step further comprises forming a structural layer in the packaging article.

48. The method of claim 40, wherein the forming step further comprises forming an oxygen scavenging layer in the packaging article.

49. The method of claim 40, wherein the forming step further comprises forming the packaging article as a single layer flexible article, a multilayer flexible article, a single layer rigid article, or a multilayer rigid article.